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AMSAT NEWS SERVICE
ANS-339
The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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ANS-339 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 339.01
 >From AMSAT HQ KENSINGTON, MD.
DATE December 4, 2016
To All RADIO AMATEURS
BID: $ANS-339.01

Past AMSAT-NA President Frank (Robin) Haighton, VE3FRH SK

On behalf of AMSAT-North America, it is with great sadness that I announce the
passing of Frank (Robin) Haighton, VE3FRH. Robin suffered a debilitating stroke
earlier in this last week, was admitted to the hospital and became a silent key
on the morning of December 2nd.

Robin was a Past Executive Vice President, a past President and a long-time
member of the Board of Directors for AMSAT-North America (AMSAT-NA). Over the
years, Frank remained a strong Canadian voice for the organization. For

example, as a founding member of the Amateur Radio on the International Space
Station (ARISS) project, Robin served as one of two international delegates from Canada.

Frank Bauer, KA3HDO, ARISS's International Chairperson said that he and Robin..."had a unique perspective and relationship that was very much appreciated". Frank went on to note: "Robin contributed significantly to ARISS
through his ideas, guidance and wise counsel. He challenged members of our team to look at things in a different perspective. As a result of his sage advice, we were able work through these issues and arrive at a common approach, both in developing and delivering ARISS hardware as well as supporting the technical mentoring of schools and local hams."

I first became fully aware of Robin's many leadership talents in the mid-1990s
when I was then AMSAT's Executive Vice President. In 1997, Robin hosted our AMSAT Board of Directors meeting and Space Symposium in Toronto, Ontario, Canada, one of the first (if not THE first) time that meeting was held outside
of the USA. At about that same time, Robin stepped up to the plate to also become AMSAT's Canadian Liaison, working a number of AMSAT issues north of the
US/Canadian border.

Most notably, Robin was instrumental in coordinating AMSAT's consultant role with the Canadian MOST (Microvariability and Oscillations of STars) satellite
project. Through his tireless, "hands on" efforts with the satellite's Canadian builders, AMSAT was able to bring critical analysis and mentoring skills to bear the project which also garnered a large monetary donation to AMSAT as a result. MOST was successfully launched in 2003 and satellite remains
on orbit (and largely operational) to this day.

Throughout my time as President, and then later when we switched roles and I once again became Executive Vice President when he went on to become AMSAT's President in 2000, I always sought out and very much appreciated his wise counsel. During his time as our AMSAT President and BOD member, Frank helped to successfully guide the organization through the launch and subsequent anomalies with the Phase 3-D satellite (which later became AMSAT-OSCAR 40 (AO-
40)) on orbit. He was also instrumental in the birth, development and launch of AMSAT-NA's AO-51 satellite. During its long lifetime, AO-51 became one of the most popular (if not THE most popular) of the so-called "easy-sats", providing countless newcomers (and others) with an introduction to our wonderful world of amateur radio satellites.

Needless to say, his legacy will live on, both within the hearts and minds of
children and family members that experience ARISS, as well as those of us who
served with him during his many years as a senior officer of AMSAT.
At press time, funeral arrangements for Robin were pending, but that information will be passed along just as soon as it becomes known.
In them meantime, and during this festive holiday season, please take a few moments to keep Robin and his family in your thoughts and prayers.
Robin… you will be sorely missed.

May your spirit soar among the stars!

[ANS thanks Keith Baker, KB1SF/VA3KSF, AMSAT-NA Treasurer and Past

President,
and Frank Bauer, KA3HDO, AMSAT-NA Vice President, Human Spaceflight
for the above information]

Middle School Students' Tancredo-1 TubeSat Scheduled for Launch

The Tancredo-1 satellite, a small TubeSat built by middle school students in Brazil, is scheduled to be sent to the International Space Station on December
9, 2016. The satellite will be sent to the ISS inside the TuPOD TubeSat deployer onboard JAXA's KOUNOTORI6 cargo ship (HTV-6 mission). The TuPOD is expected to be ejected into space by the J-SSOD satellite deployer on December
19th and on December 21st, Tancredo-1 is expected to be finally ejected from the TuPOD into space. Once in space, Tancredo-1 will start transmitting telemetry data.

Tancredo-1 is the first satellite of the Ubatubasat project, a STEM project idealized by Prof. Cândido Oswaldo de Moura at Escola Municipal Tancredo Neves
public school in Ubatuba, state of Sao Paulo, Brazil. The project is supported
by the Brazilian Institute for Space Research (INPE) and the Brazilian Space Agency (AEB). Tancredo-1 will initially have the same orbit as the ISS, but it
will slowly drift with time and will eventually reenter in the atmosphere and
burn.

The Ubatubasat project team and AMSAT-BR would like to kindly request radio amateurs around the planet to monitor and report any signals heard from Tancredo-1. Please send any reports (audio, AX.25 KISS files, etc) to py2sdr(a)gmail.com

Tancredo-1 will transmit on 437.200 MHz using 1200 bps AFSK AX.25.

Telemetry format and equations:
https://goo.gl/qOK6qM

For more information see:
http://www.ubatubasat.com/en/
http://www.amsatuk.me.uk/iaru/finished_detail.php?serialnum=419
http://amsat-br.org/

[ANS thanks Edson, PY2SDR, AMSAT-BR, and AMSAT-UK
for the above information]

Radio Ham Awarded Space Achievement Honor

Cornwall Live reports that radio amateur David Honess M6DNT has been awarded a
prestigious space achievement honor for his Astro Pi work with the Tim Peake GB1SS Principia mission.

David Honess M6DNT was presented with a Sir Arthur Clarke Award, on behalf of
the Arthur C. Clarke Foundation and the British Interplanetary Society, for Space Achievement – Industry/Project Individual.

This came after Mr Honess and his Astro Pi project which installed two Raspberry Pi's (Izzy and Ed) on to the International Space Station as the platform for students to run their own code in space and speak with Major Tim
Peake GB1SS.

Mr Honess has been "the driving force" behind getting two UK designed and manufactured Astro Pi computers onto the International Space Station to provide
a unique facility to inspire children and adults to learn to code.

Read the full story at
http://www.cornwalllive.com/west-cornwall-man-wins-award-for-space-achievement-after-project-with-tim-peake/story-29893608-detail/story.html

Sir Arthur Clarke Awards Winners
http://www.bis-space.com/2013/04/05/9719/sir-arthur-clarke-awards-winners

You can follow the two ISS Astro Pi's Izzy and Ed at
https://twitter.com/astro_pi_ir
https://twitter.com/astro_pi_vis

[ANS thanks AMSAT-UK for the above information]

Receive Pictures from Space – ISS SSTV Dec 8-9

Slow-scan television (SSTV) transmissions are planned from the International Space Station (ISS) on December 8-9, 2016.

The SSTV images will be transmitted as part of the MAI-75 Experiment on 145.800 MHz FM using the Kenwood TM-D710 transceiver located in the Russian ISS
Service module.

The MAI-75 activities have been scheduled for the Russian crew on Dec 8 from 12:35 to 18:00 GMT and Dec 9 from 12:40 to 17:40 GMT.

Note the ISS transmissions on 145.800 MHz FM use the 5 kHz deviation standard
rather than the narrow 2.5 kHz used in Europe. If your transceiver has selectable FM filters try the wider filter.

The ISS Fan Club website will show you when the space station is in range
http://www.issfanclub.com/

ISS SSTV information and links at
https://amsat-uk.org/beginners/iss-sstv/

ARISS-SSTV Images
http://ariss-sstv.blogspot.co.uk/

Listen to the ISS when it is over Russia with the R4UAB WebSDR

http://websdr.r4uab.ru/

Listen to the ISS when in range of London with the SUWS WebSDR
http://websdr.suws.org.uk/

If you receive a full or partial picture from the Space Station your Local Newspaper may like to know
http://www.southgatearc.org/news/2016/july/now-is-a-great-time-to-get-ham-radio-publicity.htm

Scheduled ARISS Contacts and APRS Operations will utilize the Ericson UHF transceiver in the Columbia Module to allow multiple use of ARISS equipment onboard the ISS.

[ANS thanks AMSAT-UK and ARISS for the above information]

Aussie HAM to make an impact on Mars

On a salt lake in Central Australia early next year a radio amateur will conduct tests of a wide area radio network destined for the planet Mars.

Robert Brand VK2URB, of Thunderstruck Aerospace, reports that it is an essential part of a project to develop the Mars Nano-Lander and Methane detection system called MEDIAN, set to land in 2025.
  Approval will be sought from the Australian Civil Aviation Safety Authority
for use of the air space for the test.

The project calls for 10 separate penetrators to be ejected from the jettisoned
heat shield at about 6km from the surface of Mars. They are to spear into the
surface of Mars and form a ring about 8km wide. The radio systems will begin measuring distance between the other landers and map the network.

Robert VK2URB says they will then switch to a random packet mode and begin sending messages to an orbiting craft.

Even the orientation of each probe covering an area around the size of a small
city, will be detected and used to calculate the direction that wind, and hopefully any methane, on the thin Martian atmosphere.

Robert VK2URB says that the audacious mission is a joint project with the UK Methane detection group at the University of Central Lancashire, and the Australian Thunderstruck Aerospace team.

Robert is the design architect of the landing system, the mapping, orientation,
communications, data relay, and the on-going non-methane science package. He says that never before has a network of probes been landed anywhere outside of
earth and have impactors with the intention of surviving the process.

The possibility of microbial life on Mars has been discussed by scientists since the presence of methane gas on the red planet was found several years ago.

MEDIAN will map possible methane vent locations for a rover to investigate. If the rover fails to land, the project will still relay local weather and subsoil information back to earth.

It's expected that the tests in Central Australia will demonstrate the essential role that radio will play in mapping, locating, orienting the network and then relaying data around the network. The tests will involve dropping a simulated heat shield from 3km altitude and having the impactors fire at 2.5km feet to simulate the impact that each would have on Mars.

Even the orientation of each probe will be detected and used to calculate the direction that wind is coming from in the thin Martian atmosphere. The penetrators will stay vertical and elevate the science and radio package about a meter off the surface allowing for better radio connectivity and clear wind profile.

A meter diameter solar panel will provide adequate power and the network is expected to survive for at least six months on Mars relaying weather and sub-surface information. An expected seven of the 10 spikes will survive the impact.

Ham radio will provide essential communications for the tests and for the event.

It is hoped a special event around the testing will attract the interests of ham operators worldwide, and focus attention of the role that Australia is playing in Space Missions.

[ANS thanks Jim Linton VK3PC and the VK1WIA wireless news for the above information]

AO-7 Eclipses Return

The AMSAT satellite status page at http://www.amsat.org/status/ indicates that as of the morning of 11/25/2016, AO-7 is once again entering eclipse each orbit. This means that the 24 Hour mode change timer is interrupted each orbit, and the satellite will be found primarily in Mode U/v (aka Mode B).

As the satellite is powered solely by the now 42 year-old solar panels, it is very sensitive to strong uplink signals, particularly CW. Users should closely monitor their downlink for excessive chirp, warbling or "FM'ing" and reduce power as necessary. More information including frequencies can be found at http://ww2.amsat.org/?page_id=1031

[ANS thanks Drew, KO4MA, AMSAT Vice President, Operations for the above information]

W5RKN receives Satellite WAS, Satellite VUCC and WAC

In October 2016, Ron Parsens, W5RKN received the ARRL award for Satellite WAS #345 and Satellite VUCC #286 with 100 grids with 100 more grids ready to submit. Ron commented, "I would urge everyone to use LoTW for these awards
as that makes applying for the awards so much simpler. I also received the IARU WAC award using a satellite contact for Asia with JF2WXS on
March 13, 1994 on AO-13. I had a paper QSL card but since he was still listed
on QRZ.com, I emailed Ban and he uploaded the contact to LoTW.
Much thanks to all that provided the contacts, QSL cards and LoTW entries. It was a lot of work, but a lot of fun."

[ANS thanks Ron, W5RKN for the above information]

ISS Packet Digipeater on 437.550 MHz

The Ericsson UHF HT is using the ARISS 70cm frequency of 437.550 MHz. With the move to 70cm, this means users of the packet digipeater will have to make adjustments for Doppler on both the uplink and downlink. Even with the change in frequency, the digipeater operates exactly as it did on 145.825 MHz. For HTs or FM mobile transceivers, and possibly other radios capable of operating on 70cm FM, programming a group of 5 memory channels which compensate for Doppler will allow for 70cm packet operation. Use the following group of memory channels for the ISS packet digipeater on 437.550 MHz:

Channel	Receive (MHz)	Transmit (MHz)	Offset
1	437.560	437.540	-0.02 MHz
2	437.555	437.545	-0.01 MHz
3	437.550	437.550	(no offset, simplex)
4	437.545	437.555	+0.01 MHz
5	437.540	437.560	+0.02 MHz

Memory channels in some radios will accept separate receive and transmit frequencies, while others will accept the receive frequency and the offset size/direction. Be ready to flip-flop between the first two memories after a minute or so into the pass, and near the end flip-flop between 4 and 5. There could be moments near AOS and LOS - and maybe other points in the middle - where the signal is just in between the two RX frequencies, and your TNC or software won't decode it.

More useful advice for working the ISS packet digipeater is available from K9JKM’s document “Add ISS Packet Operation to Your Satellite Operation”, available from the AMSAT Station and Operating Hints page at:

http://www.amsat.org/?page_id=2144

[ANS thanks AMSAT-NA and Patrick, WD9EWK/VA7EWK for the above information]

AMSAT Events

Information about AMSAT activities at other important events around the country. Examples of these events are radio club meetings where AMSAT Area Coordinators give presentations, demonstrations of working amateur satellites, and hamfests with an AMSAT presence (a table with AMSAT literature and merchandise, sometimes also with presentations, forums, and/or demonstrations).

*Saturday, 14 January 2017 – Thunderbird Hamfest 2017 in Phoenix AZ

*Saturday, 4 February 2017 – Palm Springs Hamfest in Palm Springs CA

*Friday-Sunday, 10-12 February 2017 Orlando HamCation in Orlando, FL

*Friday and Saturday, 17-18 February 2017 – Yuma Hamfest in Yuma AZ

*Friday-Sunday, March 31, April 1 & 2, 2017, NVCON in Las Vegas, NV

[ANS thanks AMSAT-NA for the above information]

ARISS News

Successful Contacts

* A telebridge contact via LU1CGB with students at Michel LOTTE Junior High School in Belle Isle, France was successful Mon 2016-11-28.

* A telebridge contact via W6SRJ with students at Salesian High School in Wroclaw, Poland was successful Fri 2016-11-25.

Upcoming Contacts

* Collège Jean Charcot, Saint Malo, France, telebridge via IK1SLD
The ISS callsign is presently scheduled to be OR4ISS
The scheduled astronaut is Thomas Pesquet KG5FYG
Contact is a go for: Thu 2016-12-08 15:19:45 UTC 74 deg
This contact might be on the downlink of 437.525 MHz

* The Museum of Innovation and Science (miSci), Schenectady NY, direct via W2IR
The ISS callsign is presently scheduled to be NA1SS
The scheduled astronaut is Shane Kimbrough KE5HOD
Contact is a go for: Sat 2016-12-10 19:49:54 UTC 85 deg

Watch
http://www.ariss.org/upcoming-contacts.html
for information about upcoming contacts as they are scheduled.

[ANS thanks ARISS and Charlie, AJ9N for the above information]

Satellite Shorts From All Over

South African SDR Workshop Completed Phase 1, Now Planning Phase 2

Last Saturday it was hi-tech amateur radio at the National Amateur Radio Center
when Cor Rademeyer, ZS6CR and Anton Janovsky, ZR6AIC presented the Software Defined Radio Workshop. Known by its initials SDR, it is a software way
of creating a receiver and transmitter. During the workshop which included two
videos introducing the SDR concept, the two speakers created a two metre to 70cm FM repeater using a dongle and a Raspberry Pi. The workshop, presented
by AMSAT SA in cooperation with the SARL was attended by 37 radio amateurs and electronic hobbyists. A follow up workshop is planned for 18 February when
Cor and Anton will take delegates through the steps of creating a satellite receiver
using the RTL dongle and software. The workshop registration fee will include a
dongle and memory stick with the required software. Full details will become
available on amsatsa.org.za in the next few weeks.

The various presentations and videos presented last Saturday, including how to
build a repeater with a Raspberry Pi will be posted on www.amsatsa.org.za
this weekend. You will also be able to follow the links from www.sarl.org.za.

[ANS thanks SARL weekly news in English 2016-12-3 for the above information]

FUNcube-1/AO73 Celebrates 3 Years in Space

Monday, November 21, 2016, marked the third birthday in space for the 985 gram
spacecraft FUNcube-1 / AO73.

FUNcube-1 was launched at 07:10 UT on November 21, 2013 and its first signals
were received immediately after deployment over the Indian Ocean by amateurs in
South Africa. Since then it has been operating continuously in either its education mode or, with the transponder active, in amateur mode when in eclipse
and at weekends.

The FUNcube team are very grateful to everyone who has been contributing their
telemetry records to the Data Warehouse and also to those who are using FUNcube-
1 for educational outreach to schools and colleges around the world. This important part of our mission is intended to encourage young people to develop
an interest and passion in all STEM subjects for their future.
The spacecraft is operating nominally – the telemetry indicates that all the

sub-systems are fine. The battery voltages, solar panel charge currents and on
board temperatures are virtually unchanged since launch.

In addition to FUNcube-1, there are now similar FUNcube transponders operating
in low earth orbit on the UKube-1 and EO79/QB50p1 CubeSats.

The team has recently contributed to the development of Nayif-1, which is
presently awaiting launch, and is currently working on a number of further
CubeSat and microsat projects.

Happy Birthday AO73!

Get your 73 on 73 Award, details at
https://amsat-uk.org/funcube/73-on-73-award/

AO-73 (FUNcube-1) website
https://amsat-uk.org/funcube/funcube-website/

FUNcube Yahoo Group
https://amsat-uk.org/funcube/yahoo-group/

https://amsat-uk.org/2016/11/21/funcube-1-ao73-celebrates-3-years-in-space/

[ANS thanks AMSAT-UK for the above information]

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In addition to regular membership, AMSAT offers membership in the
President's Club. Members of the President's Club, as sustaining
donors to AMSAT Project Funds, will be eligible to receive addi-
tional benefits. Application forms are available from the AMSAT
Office.

Primary and secondary school students are eligible for membership
at one-half the standard yearly rate. Post-secondary school students
enrolled in at least half time status shall be eligible for the stu-
dent rate for a maximum of 6 post-secondary years in this status.
Contact Martha at the AMSAT Office for additional student membership
information.

73,
This week's ANS Editor,
Joe Spier, K6WAO
k6wao at amsat dot org